

Guide to Writing a Thesis

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The Design and Implementation of a Nifty Gadget

Tekla-Liz Book

April 32, 1992

Abstract

What is all this about?
Why should I read this thesis?
Is it any good?
What's new?

Preface

Have you done anything that doesn't have to do with your research?
Have you published parts of this work before?

Acknowledgement

Who is your advisor?
Did anyone help you?
Who funded this work?
What's the name of your favorite pet?

1 Introduction

What is the use of a Nifty Gadget?
What is the problem?
How can it be solved?
What are the previous approaches?
What is your approach?
Why do it this way?
What are your results?
Why is this better?
Is this a new approach?
Why haven't anyone done it before?

or

Why do you reiterate previous work?

What is your contribution to the field of Nifty Gadgets?

2 Theoretical background

What is the required background knowledge?

Where can I find it?

2.1 Various approaches to Nifty Gadgets

What is the relevant prior work?

Where can I find it?

Why should it be done differently?

Has anyone attempted your approach previously?

Where is that work reported?

2.2 Nifty Gadgets my way

What is the outline of your way?

Have you published it before?

3 My implementation of a Nifty Gadget

Can you describe your implementation in detail?

Why did you use this technology?

How does the theory relate to your implementation?

What are your underlying assumptions?

What did you neglect and what simplifications have you made?

What tools and methods did you use?

Why use these tools and methods?

4 Nifty Gadget results

Did you actually build it?

How can you test it?

How did you test it?

Why did you test it this way?

Are the results satisfactory?

Why should you (not) test it more?

What compensations had to be made to interpret the results?

Why did you succeed/fail?

5 Discussion

Are your results satisfactory?

Can they be improved?

Is there a need for improvement?

Are other approaches worth trying out?
Will some restriction be lifted?
Will you save the world with your Nifty Gadget?

6 References

What is the background reading list?
Where is the related work?
Where is the prior work?
Where can I find important material?

Appendix A

Can you outline fatilary calculus or whatever complicated theory or results you are using that will obscure the text?

Appendix B

A thesis should discuss the following topics:

- **Introduction**

Presentation of the problem or phenomenon to be addressed, the situation where the problem or phenomenon occurs, and references to earlier relevant research.

Common errors

Problem is not properly specified or formulated; insufficient references to earlier work.

- **Purpose**

What can be gained by more knowledge about the problem or phenomenon.

Common errors

The purpose is not mentioned, not connected to earlier research, or not in line with what the actual contents of the thesis.

- **Problem/Hypothesis**

Questions that need to be answered to reach the goal and/or hypothesis formulated be means of underlying theories.

Common errors

Missing problem description; deficiencies in the connections between questions; badly formulated hypothesis.

- **Method**

Choice of an adequate method with respect to the purpose and problem/hypothesis.

Common errors

An inappropriate method is used, for example due to lack of knowledge about different methods; erroneous use of chosen method.

- **Result**

Answers to the forwarded questions by means of the achieved results.

Common errors

The results are not properly connected to the problem; blurry presentation; the results are inter-mixed with discussion.

- **Discussion**

Discussion of the accuracy and relevance of the results; comparison with other researchers results.

Common errors

Too far reaching conclusions; guesswork not supported by the data; introduction of a new problem and a discussion around this.

- **Conclusion**

Consequences of the achieved results, for example for new research, theory and applications.

Common errors

The conclusions are too far reaching with respect to the achieved results; the conclusions do not correspond with the purpose.

[Home Page for the Department of Applied Electronics](http://www.tde.lth.se/cccd/education/nifty.html)